UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/711,836 | 10/08/2004 | Shang-Pin Sun | MTKP0185USA | 5835 |

27765 7590 03/20/2009

NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION
P.O. BOX 506
MERRIFIELD, VA 22116

| EXAMINER | |
|---|---|
| PENDLETON, DIONNE | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2627 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 03/20/2009 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

winstonhsu.uspto@gmail.com
Patent.admin.uspto.Rcv@naipo.com
mis.ap.uspto@naipo.com.tw

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/711,836 | SUN ET AL. | |
| | Examiner | Art Unit | |
| | DIONNE H. PENDLETON | 2627 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *30 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-3,5,7-12,14,16-18,20 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,7-12,14,16-18,20 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. **Claims 1, 5, 8-10, 17, 18, 20 and 21** are rejected under 35 U.S.C. 102(b) as being anticipated by **MIYAOKA (US 5,398,227)** in view of **KUROKAWA (US Publication 2005/0088953).**

**Regarding claims 1 and 10,**

In Miyaoka's discussion of the prior art, Miyaoka teaches an optical device having a light emitting device and a method of calibration having a light emitting device ***("32" in figure 4)*** and a photo monitor ***("32b" in figure 4),*** comprising:

controlling power of the light emitting device by changing values of a drive signal to the light emitting device ***(column 2, lines 13-15 and lines 22-25 disclose that the laser is controlled via a first and second drive current),***

detecting light, via "***32b***" emitted by the light emitting device (***32a***) and generating a monitor signal having a value corresponding to the light emitted by the light emitting device utilizing the photo monitor ***(output of laser (32a) is monitored and a voltage***

***signal, corresponding to laser power, is generated; said voltage signal corresponding, at least in part, to "a monitor signal");***

converting received monitor signal values for a plurality of drive signals to corresponding powers of the light emitting device according to a predetermined conversion rule ***(column 2, lines 19-22);*** and

determining a preliminary power relationship relating values of the drive signal to powers of the light emitting device according to received monitor signal values for a plurality of drive signal values and a predetermined conversion rule (***column 2, lines 27-33)***.

Miyaoka teaches the method and device of claims 1 and 10.

Miyaoka fails to expressly teach further generating a final power relationship by performing a power relationship correction operation comprising the steps as claimed.

Kurokawa teaches generating a final power relationship **(see para [0084] for discussion of determining optimum write power)** by performing a power relationship correction operation on an optical medium of the optical device; the power relationship correction operation comprises: writing test data to the optical medium of the optical device using a particular drive signal value for a predetermined power value according to the preliminary power relationship ***([0054]-[0065] discloses a write learning process);*** reading a read signal corresponding to the test data from the optical medium ***(paragraphs [0085-0086] discloses obtaining output signal levels from photodetector "116")***; and analyzing the read signal to determine if the test data was

written to the optical medium at the particular power and correspondingly adjusting the preliminary power relationship such that the test data is written to the optical medium at the predetermined power to thereby generate the final power relationship ***(in para [0086] Kurokawa teaches a first control method using a power relationship relating drive signal to power level, specifically lines 5-8 of [0086] discloses calculation of write power corresponding to the output of photodetector 116, therein teaching a power relationship between write power and the monitored signal from the photodetector 116, and an unnamed value. Lines 9-11 of para [0086] further defines the power relationship as existing between write power, the monitored signal value and current value (drive signal) supplied to the laser in its teaching of adjusting the power relationship specifically through varying the current value (drive signal) supplied to the laser diode).***

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Miyaoka and Kurokawa, further generating a final power relationship by performing a power relationship correction operation comprising the steps as claimed, for the purpose of more accurately calibrating laser intensities to a desired laser power.

**Regarding claim 5.**

Kurokawa teaches the method of claim 4, wherein the power relationship correction operation involves performing an optimum power control (OPC) on the optical medium of the optical device.

**Regarding claims 8 and 17,**

Miyaoka teaches the method and device of claims 1 and 10, respectively, wherein the optical device is an optical disc drive or a optical disc recorder, the photo monitor is a front monitor diode (FMD), and the light emitting device is a laser diode ***(Figure 1 illustrates that the photo detector "32b" is mounted in a housing together with the laser diode "32a")***.

**Regarding claims 9 and 18,**

Miyaoka teaches the method and device of claims 8 and 17, respectively, being capable of calibrating the write power or the read power of the laser diode.

**Regarding claims 20 and 21,**

The combined disclosures of Miyaoka and Kurokawa teach the method and device of claims 4 and 13, respectively.

The combined disclosures of Miyaoka and Kurokawa fail to explicitly teach that the power correction operation is performed during manufacture. However, the Examiner takes Official Notice that the provision of recommended data related to write pulse shape, laser recording power value, laser reproducing power value etc., is well known in the art and would have been obvious for the purpose of providing a starting point for firmware of the drive apparatus.

2. **Claims 2, 3, 11, 12 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over **MIYAOKA (US 5,398,227)** in view of **KUROKAWA (US Publication 2005/0088953),** And further in view of **CALL (US 5,640,381).**

**Regarding claims 2 and 11,**

Miyaoka/Kurokawa teaches the method and device of claims 1 and 10, respectively.

Miyaoka/Kurokawa fails to teach determining an offset value and converting the received monitor signal values according to the offset value as claimed.

Call teaches determining an offset value being a maximum value of the drive signal where the light emitting device does not emit light according to the received monitor signal values ***(column 11:35-46; also step "218" in Figure 9);***

and converting the received monitor signal values corresponding to drive signal values being higher than the offset value to power values according to the predetermined conversion rule to thereby generate the preliminary power relationship ***(steps "224"-"226" in Figure 9 wherein a plurality of laser generated emissions are analyzed (226) for the purpose of identifying the optimal power level).***

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Miyaoka, Kurokawa and Call, further calculating the threshold current for each sector in which OPC is performed, for the purpose of more accurately calibrating laser intensities to a desired laser power.

**Regarding claims 3 and 12,**

Call teaches the method and device of claims 2 and 11, respectively, wherein determining the preliminary power relationship relating the values of the drive signal to the powers of the light emitting device further comprises the following steps:

controlling the power of the light emitting device by utilizing a first drive signal value and a second drive signal value ***(column 11, lines 35-37)***;

extrapolating monitor signal values of a line formed between a first received value of the monitor signal corresponding to the first drive signal value, and a second received value of the monitor signal corresponding to the second drive signal value ***(step "218" in figure 9)***;

determining the offset value of the drive signal to be a crossing value of the drive signal corresponding to where the extrapolated monitor signal values of the line cross a predetermined value of the monitor signal when the light emitting device is not emitting any light ***(also in step "218" in figure ; and see column 11, lines 37-46);***

and converting the extrapolated monitor signal values of the line corresponding to drive signal values being higher than the offset value to power values according to the predetermined conversion rule to thereby generate the preliminary power relationship ***(steps "219" through "227" in figure 9).***

**Regarding claim 14,**

Call teaches the auto-calibrating optical device of claim 11, wherein the power relationship correction operation involves the microprocessor performing an optimum power control (OPC) on the optical medium of the optical device.

3. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over **MIYAOKA (US 5,398,227)** in view of **KUROKAWA (US Publication 2005/0088953)** as applied to claim 4, and further in view of **KENJO (US 5,029,155).**

**Regarding claim 7,**

The combined disclosures of Miyaoka and Kurokawa teach the method of auto-calibration recited in claim 4.

The combined disclosures of Miyaoka and Kurokawa fail to expressly teach storing the final power relationship for use during normal operations.

Kenjo teaches a non-volatile memory ***("28" in figure 1)*** for storing the final power relationship determined by the microprocessor during the calibration mode, the final power relationship being used by the microprocessor during normal operations for controlling values of the drive signal according to desired powers of the light emitting device ***(column 5, lines 32-39; also see column 5, line 66 through column 6, line 3).***

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Miyaoka, Kurokawa and Kenjo, storing the final power relationship determined by the microprocessor during the calibration mode, the final power relationship being used during normal operations, for the purpose of recording and reproducing data using a power level most suitable to the disc.

4. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over **MIYAOKA (US 5,398,227)** in view of **KUROKAWA (US Publication 2005/0088953)** and **CALL (US 5,640,381)** as applied to claim 11, and further in view of **KENJO (US 5,029,155).**

**Regarding claim 16,**

The combined disclosures of Miyaoka and Call teach the method of auto-calibration recited in claim 11.

The combined disclosures of Miyaoka and Call fail to expressly teach storing the final power relationship for use during normal operations.

Kenjo teaches a non-volatile memory ***("28" in figure 1)*** for storing the final power relationship determined by the microprocessor during the calibration mode, the final power relationship being used by the microprocessor during normal operations for controlling values of the drive signal according to desired powers of the light emitting device ***(column 5, lines 32-39; also see column 5, line 66 through column 6, line 3).***

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Miyaoka, Call and Kenjo, storing the final power relationship determined by the microprocessor during the calibration mode, the final power relationship being used during normal operations, for the purpose of recording and reproducing data using a power level most suitable to the disc.

***Response to Arguments***

5. Applicant's arguments filed 9/7/2008 have been fully considered but they are not persuasive.

With regard to the Applicant's argument that **Kurokawa Fails To Teach, "Generating A Final Power Relationship By Performing A Power Relationship Correction Operation...And Correspondingly Adjusting The Preliminary Power Relationship To Generate A Final Power Relationship", As Recited In Claims 4 And 13, Now Incorporated Into Independent Claims 1 And 10:**

Since Miyaoka teaches the calibrating device and method of laser calibration as recited in claims 1 and 10, prior to the incorporation of claims 4 and 13, and since the Examiner maintains that Kurokawa teaches generating an optimum write power i.e., final power relationship, by performing a correction operation which involves varying the direct current to control the laser's output power, in response to a monitor signal value from photodetector 116, the combined teachings of Miyaoka and Kurokawa are maintained as fairly anticipating the limitations of newly amended claims 1 and 10.

***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIONNE H. PENDLETON whose telephone number is (571)272-7497. The examiner can normally be reached on 10:30-7:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dionne H Pendleton/
Examiner, Art Unit 2627

/Wayne Young/
Supervisory Patent Examiner, Art Unit 2627